

Work Order ID 85162

85162

Page 1

June-04-12 10:22:07 AM

Item ID: D3391-023
Revision ID:
Item Name: Mid Tube Assembly

Accept

N900040100

Setup Start ***NS1***

Stop ***NS2***

Start Date: 04/06/2012 Start Qty: 1.00 ***1***
Required Date: 18/06/2012 Req'd Qty: 1.00 ***1***

Cust Item ID:
Customer:

Reference:

Approvals: Process Plan: ML5 Date: 12/06/04 Tooling:
QC: Date: SPC (Y/N):

Run Start ***NR1***
Stop ***NR2***

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

| Draw Nbr | Revision Nbr |
|----------|--------------|
|----------|--------------|

| | |
|-------|---|
| D3391 | 1 |
|-------|---|

100

0.00

1000

Skidtubes

Skidtubes

0.00

Memo

1-Cut tube to finish length as per Dwg D3391

2-Drill pilot holes using DT8796 (Do not drill "B" holes) and drill only 1 fwd saddle hole on one side only as per Dwg D3391

3-Open saddles and GHW holes to Ø0.375" except for fwd saddle hole of detail "J"

4-Remove .030" from Fwd indexing Ridge as per Dwg D3391

5-Remove indexing ridge on Fwd & Aft end of skidtube as per Dwg D3391

6-Deburr

7-Drill #30 pilot holes using wearplate Jig DT8217 Identify Ø0.250" holes with paint marker,
***DO NOT DRILL HOLES #3-19-20 FROM FWD END OF JIG

8-Open wearplate holes of D3391-023 assembly detail section G-G to Ø0.250" (10 holes) as per Dwg D3391

9-Open wearplate holes of D3391-023 assembly detail section H-H to Ø0.297" (20 holes) as per Dwg D3391
DO NOT OPEN 2 MOST FWD WEARPLATE HOLES

370 120605
①

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 85162

June-04-12 10:22:07 AM

85162

Page 2

Item ID: D3391-023
 Revision ID:
 Item Name: Mid Tube Assembly
 Start Date: 04/06/2012 Start Qty: 1.00
 Required Date: 18/06/2012 Req'd Qty: 1.00
 Reference:

Accept

N900040100

Setup Start ***NS1***
 Stop ***NS2***

Cust Item ID:
 Customer:

Approvals: Process Plan: Date: Tooling: Date:
 QC: Date: SPC (Y/N): Date:

Run Start ***NR1***
 Stop ***NR2***

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|---|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| | 10-Open .375" holes to .438" ***do not open fwd saddle holes*** | | SAD | Q-0605 | | | | | |
| | 11-Locate D3391-021 in D3391-023 at 9.00" (see view z-z) | | | | | | | | |
| | 12- Transfer drill one fwd saddle hole only to .188" dia, transfer drill all remaining fwd saddle holes using DT 8149 locating from previously drill .188" dia hole, using t-pins and clicos to ensure perfect allingment, open up previously tranfer drilled pilot holes in D3391-023/-021 to 0.438" dia. in D3391-021 | | | | | | | | |
| | 13- Using DT8217, locating from two previously drilled holes, drill remaining wearplate holes into D3391-021. | | | | | | | | |
| | 14- Locating from two fwd wearplate holes in D3391-023 drill remaining 6 wearplate holes in D3391-021 using DT8937 | | | | | | | | |
| | 15- Open 12 wearplate holes in D3391-021 to 0.297" dia. | | | | | | | | |
| | 16-Deburr and blow out all chips from inside tube, scribe batch# in D3391-023 at aft end. | | | | | | | | |

De 12/06/11

110
110
 QC
 Quality Control

QC5- Inspect part completeness to step on W/O 0.00

Memo

0.00

S. R. R. R. R.

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 85162

85162

Page 3

June-04-12 10:22:07 AM

Item ID: D3391-023

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Mid Tube Assembly

Stop

NS2

Start Date: 04/06/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 18/06/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

120

Chemical Conversion Coat per QSI005 4.1

0.00

120

HandFinish

Memo

0.00

Hand Finishing

1 7/6 12-6-12

130

QC7-Inspect Chemical Conversion Coat

0.00

130

QC

Memo

0.00

Quality Control

① 0 12/06/12

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 85162

June-04-12 10:22:07 AM

85162

Page 4

Item ID: D3391-023
Revision ID:
Item Name: Mid Tube Assembly

Accept

N900040100

Setup Start ***NS1***
Stop ***NS2***

Start Date: 04/06/2012 Start Qty: 1.00 ***1***
Required Date: 18/06/2012 Req'd Qty: 1.00 ***1***

Cust Item ID:
Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date:
QC: Date: SPC (Y/N): Date:

Run Start ***NR1***
Stop ***NR2***

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|---|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 140 | Skidtubes | 0.00 | | | | | | | |
| *140* | | | | | | | | | |
| Skidtubes | Memo | 0.00 | | | | | | | |
| Skidtubes | 1-Open float bag holes as per dwg 2-C'sink float bag holes as per dwg 3- Prepare tube for welding 4-Bond web in place as per Dwg D3391 & QSI 015. Adhere for 12 hours) A/R Sikaflex exp: <u>11/21/09</u> batch#: <u>13-4-12</u> NOTE:ENSURE WEB IS INSERTED IN AFT END OF TUBE | | | | | | | | |
| 150 | QC5- Inspect part completeness to step on W/O | 0.00 | | | | | | | |
| *150* | | | | | | | | | |
| QC | Memo | 0.00 | | | | | | | |
| Quality Control | | | | | | | | | |

DC 12/06/12

1 8 BE 12/06/13

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 85162

June-04-12 10:22:07 AM

85162

Page 5

Item ID: D3391-023

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Mid Tube Assembly

Start Date: 04/06/2012 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 18/06/2012 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date:

Run Start ***NR1***

QC: Date: SPC (Y/N): Date:

Stop ***NR2***

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

| | | | | | | | | | |
|--------------|--|------|--|--|--|--|--|--|--|
| 160 | Skidtubes | 0.00 | | | | | | | |
| *160* | | | | | | | | | |
| Skidtubes | Memo | 0.00 | | | | | | | |
| Skidtubes | 1-Weld crossbolt spacer as per dwg D3391 & QSI 004 2-grind weld flush | | | | | | | | |

A/R M120164

| | | | | | | | | | |
|-----|---|------|--|--|--|--|--|--|--|
| 170 | QC10- Inspect visual per QSI004- ground welds | 0.00 | | | | | | | |
|-----|---|------|--|--|--|--|--|--|--|

| | | | | | | | | | |
|--------------|------|------|--|--|--|--|--|--|--|
| *170* | | | | | | | | | |
| QC | Memo | 0.00 | | | | | | | |

S12/06/13

Quality Control

| | | | | | | | | | |
|-----|---|------|--|--|--|--|--|--|--|
| 180 | QC5- Inspect part completeness to step on W/O | 0.00 | | | | | | | |
|-----|---|------|--|--|--|--|--|--|--|

| | | | | | | | | | |
|--------------|------|------|--|--|--|--|--|--|--|
| *180* | | | | | | | | | |
| QC | Memo | 0.00 | | | | | | | |

S12/06/13

Quality Control

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 85162

June-04-12 10:22:07 AM

85162

Page 6

Item ID: D3391-023

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Mid Tube Assembly

Start Date: 04/06/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 18/06/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

185

Pressure Wash per QSI005 4.3

0.00

185

HandFinish

Memo

0.00

Hand Finishing

AND REALODINE AS PER PAR09-043

DPB 12-6-13

190

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

190

Powdercoat

Memo

0.00

Powder Coating

START TIME:

OVEN TEMPERATURE:

FINISH TIME:

7:30
320°F
8:00

1X *mf*
12/06/14

200

QC3- Inspect Part Finish

0.00

200

QC

Memo

0.00

Quality Control

1 x d *12/06/18*

M121134

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 85162

June-04-12 10:22:07 AM

85162

Page 7

Item ID: D3391-023

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Mid Tube Assembly

Stop

NS2

Start Date: 04/06/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 18/06/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

210

0.00

210

Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1- insert D3391-021 into D3391-23

2- insert T-pins into first and third fwd saddle holes

3- ON FIRST SIDE ONLY drill out 2nd and forth fwd saddles holes to 0.500" as per DSI 9364

4- remove T-pins and locate DT9415 from first and third crossbolt hole using T-pins and clekos

5- ON 2ND SIDE ONLY ream out 2nd and forth saddle hole to 0.499". Remove DT9415

6- deburr, re-alodine and blow out chips

7- press fit D3591-1 spacers using DT9416 starting from 0.500" side

1 x 1 d 111 110611

220

QC5- Inspect part completeness to step on W/O

0.00

220

QC

Memo

0.00

Quality Control

8216116

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

85162

Page 8

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 04/06/2012 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 18/06/2012 **Req'd Qty:** 1.00 *** 1 ***

Customer:

Reference:

Approvals: **Process Plan:** **Date:** **Tooling:** **Date:** **Run** **Start** ***NR1***
QC: **Date:** **SPC (Y/N):** **Date:** **Stop** ***NR2***

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

230

230

HandFinish

Hand Finishing

HandFinishing

Memo

Install Inserts as per Dwg

Set Up/ Run Hours

0.00

0.00

Tool ID

Tool #Plan
Code

Accept Qty

Reject
Qty

Reject Number

**Insp.
Stamp**

240

240

QC

Quality Control

QC5- Inspect part completeness to step on W/O

Memo

0.00

0.00

250

250

Packaging

Packaging

Identify as per dwg & Stock Location: wlo

Memo

0.00

0.00

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 85162

June-04-12 10:22:07 AM

85162

Page 9

Item ID: D3391-023

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: Mid Tube Assembly

Stop ***NS2***

Start Date: 04/06/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 18/06/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

260

QC21- Final Inspection - Work Order Release

0.00

260

QC

Memo

0.00

Quality Control

12/6/19 JF
mf
12-06-18

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Picklist Print

June-04-12 10:22:11 AM

Page 1

Work Order ID: 85162

85162

Parent Item: D3391-023

D3391-023

Parent Item Name: Mid Tube Assembly

Start Date: 04/06/2012

Required Date: 18/06/2012

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP A05.10.20 New Issue KJ/EC
 IPP B06.02.10 ECN 773 dwg rev.D EC
 IPP C 07.03.20 rev F dwg EC
 IPP D 07.03.28 re-format EC
 IPP E 07.10.31 ecn 1053P EC
 IPP Rev:F ECN 1056 07-11-13 DD verified by: EC
 IPP Rev:G 08-09-08 new process (ecn 08-510) DD verified by:EC
 IPP Rev:H 08-09-10 revH as per dwg DD verified by:EC
 IPP Rev:I 08-11-13 Removed steps per w/o, QC KJ verified by: ec IPP
 Rev:J add in seq 140 expire date & b# sikaflex DD 10.02.17 verified by:EC

| Component Item ID/ Item Name | Replacement Item ID | Mfg/ Purch | Bin Item | Primary Location | Last Location | Route Seq ID | Unit of Measure | Qty on Hand | Qty per Kit | Total Qty | Qty Issued | Date Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|-----------------|-------------|--------------|---------------|----------------|--------|
| D2500-1-100 | | Manufactured | No | | | 100 | Each | 82.0000 | 1 | 1 | | | |
| *D2500-1-100* | | | | | | | | | ** | | | | |
| Skidtube Extrusion | | | | | | | | | | | | | |
| | | | | <u>Location</u> | | <u>Loc Qty</u> | | <u>Loc Code</u> | | | | | |
| | | | | HALL | | 82 | | | | | | | |
| | | | | 50251 | | 9 | | | | | | | |
| | | | | 82373 | | 73 | | | | | | | |
| D3391-021 | | Manufactured | No | B82362 | | 100 | Each | 0.0000 | 1 | 1 | | | |
| *D3391-021* | | | | | | | | | ** | | | | |
| Fwd Tube Assembly | | | | | | | | | | | | | |
| D3389-1 | | Manufactured | No | | | 140 | Each | 10.0000 | 1 | 1 | | | |
| *D3389-1* | | | | | | | | | ** | | | | |
| Web | | | | | | | | | | | | | |
| | | | | <u>Location</u> | | <u>Loc Qty</u> | | <u>Loc Code</u> | | | | | |
| | | | | LG | | 10 | | | | | | | |
| | | | | 83848 | | 4 | | | | | | | |
| | | | | 83849 | | 6 | | | | | | | |

SAD 12-06-06

DC 12/06/12

DC 12/06/12

(1)

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Picklist Print

June-04-12 10:22:11 AM

Page 2

Work Order ID: 85162

Parent Item: D3391-023

Parent Item Name: Mid Tube Assembly

85162

D3391-023

Start Date: 04/06/2012

Required Date: 18/06/2012

Start Qty: 1.00

Required Qty: 1.00

D3681-1

Manufactured No

160

Each

87.0000

5

5

D3681-1

Spacer

**

BE 12/06/13

Location

Loc Qty

Loc Code

LG

77

80361

1

84053

76

LG001

10

68958

2

69893

2

71845

2

74874

1

76004

1

77501

2

D3591-1

Manufactured No

210

Each

96.0000

2

2

D3591-1

Bushing

**

Y1 12/06/18

Location

Loc Qty

Loc Code

FP

5

80377

4

82027

1

ST055

91

57350

1

83237

90

X2

June-04-12 10:22:11 AM

Shop Packet Print

Page 2

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Picklist Print

June-04-12 10:22:11 AM

Page 3

Work Order ID: 85162

Parent Item: D3391-023

Parent Item Name: Mid Tube Assembly

85162

D3391-023

Start Date: 04/06/2012

Required Date: 18/06/2012

Start Qty: 1.00

Required Qty: 1.00

ALS4-1032-130

Purchased

No

230

Each

2,457.000

20

20

AI S4-1032-130

Insert

**

HL in

Location

Loc Qty

Loc Code

ST280

205

119084

116

120671

89

ST281

74

120807

36

120837

38

ST282

2178

121269

2178

x20

Dart Aerospace Ltd

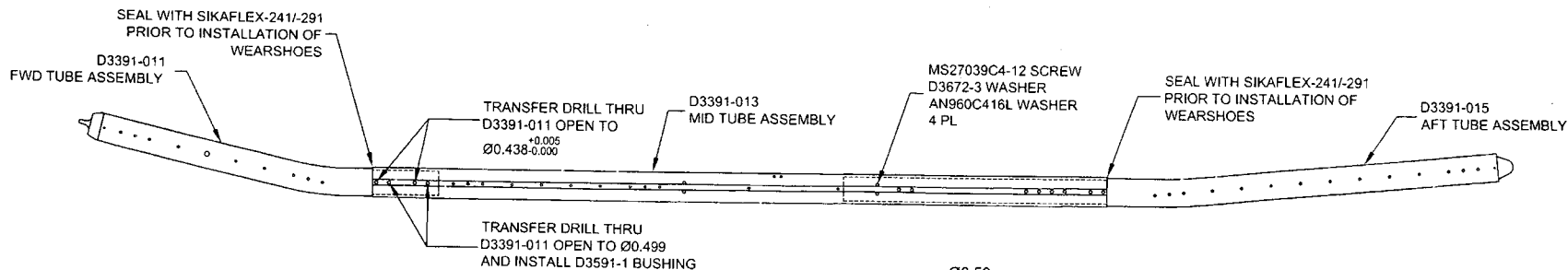
| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries



SHOP COPY D3391-041 ASSEMBLY
 RETURN TO
 ENGINEERING
 UNCONTROLLED COPY
 SUBJECT TO AMENDMENT
 WITHOUT NOTICE
 WORK ORDER
 NO. 85162 MLJ
12/06/04

RELEASED
 2011-11-04
 ECN# 11-662

D3391-041 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

| QTY | PART NUMBER | DESCRIPTION |
|------|--------------|-------------------------|
| -041 | | |
| X | D3391-041 | FLOAT SKIDTUBE ASSEMBLY |
| 1 | D3391-011 | FWD TUBE ASSEMBLY |
| 1 | D3391-013 | MID TUBE ASSEMBLY |
| 1 | D3391-015 | AFT TUBE ASSEMBLY |
| 2 | D3591-1 | BUSHING |
| 4 | D3672-3 | WASHER |
| 1 | D4095-041 | WEARSHOE |
| 1 | D4095-043 | WEARSHOE |
| 1 | D4095-045 | WEARSHOE |
| 1 | D4095-047 | WEARPAD |
| 1 | D4095-049 | WEARPAD |
| 1 | D4095-051 | WEARSHOE |
| 24 | AN3C4A | BOLT |
| 10 | AN3C6A | BOLT |
| 4 | AN3C7A | BOLT |
| 38 | AN960C10L | WASHER |
| 4 | MS27039C4-12 | SCREW |
| 4 | AN960C416L | WASHER |

GENERAL NOTES

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON"
AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES
FOR WEARSHOE INSERTS. CBORE AS NOTED AND INSTALL INSERTS EXCEPT
WHERE INDICATED.
- 6) FIT D4095-041 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH
APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND
TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-041
- 7) FIT D4095-043 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH
THE APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND
TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-043

| | | | |
|------------|---|-----|----------|
| I | REMOVE GASKETS AND REPLACE ALL WEARSHOES; PARTS LIST UPDATE, ZN A8-1, ZN A8-2, ZN A6-4, ZN B6-8; LPS-3 COATING REMOVED FROM NOTE 2, ZN A3-1, ZN A3-2, REMOVED INSERT AELS-1032-130, ZN B6-4, B2-4, C7-8, C3-8; REMOVED HOLES, ZN D6-4 ZN D2-4, ZN D7-8, ZN D3-8 | XDF | 11.10.13 |
| H | DRAWING UPDATED TO CURRENT STANDARDS. SHT 1 PL ADDED D3591-1 BUSHING, ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. SHT 2 PL ADDED D3591-1 BUSHING, ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. (FOR FURTHER INFO SEE OSI 9364 & NCR 08-074) | AJS | 08.08.20 |
| G | REPLACE NAS INSERTS W/ AELS INSERTS SWITCH TO D3670-XXXX SPACERS FOR INSTALLING FLOAT BAGS, DWG REORGANIZED FOR CLARITY | DC | 07.07.31 |
| F | ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021 | PH | 07.01.18 |
| E | CHANGE TOLERANCE, EASE MANUFACTURE | PH | 06.04.25 |
| D | UPDATE TOLERANCE, CHANGE HOLE SIZE | PH | 06.01.23 |
| C | LENGTHEN AFT EXTENSION | PH | 05.09.27 |
| B | DRAWING UPDATES | PH | 05.06.10 |
| A | NEW ISSUE | PH | 05.02.07 |
| REV. | DESCRIPTION | BY | DATE |
| DESIGN | PH | | |
| DRAWN | XDF | | |
| CHECKED | | | |
| MFG. APPR. | | | |
| APPROVED | | | |
| DE APPR. | | | |
| DATE | 11.10.13 | | |

COPYRIGHT © 2005 BY DART AEROSPACE USA, INC.
 THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS
 NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT
 WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.

DART AEROSPACE USA, INC
 KENT, WA

DRAWING NO. **D3391** REV. **I**
 SHEET **1** OF **8**

TITLE **412 FLOAT SKIDTUBE** SCALE **NTS**

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

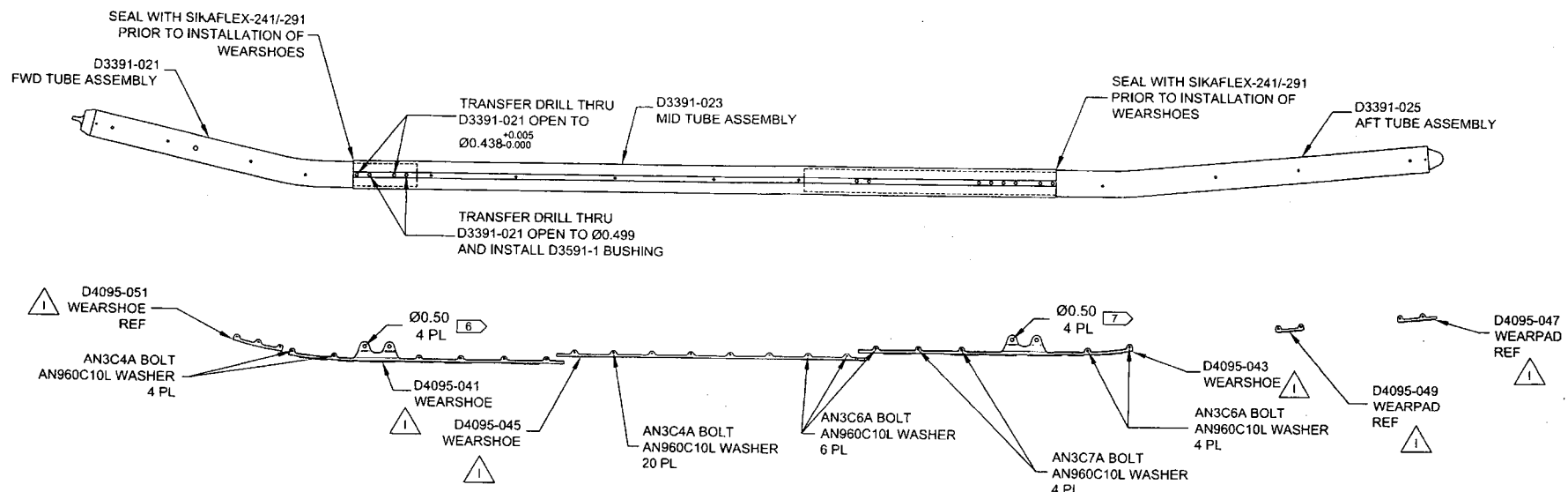
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

25162



D3391-043 ASSEMBLY

D3391-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

| QTY -043 | PART NUMBER | DESCRIPTION |
|----------|-------------|-------------------------|
| X | D3391-043 | FLOAT SKIDTUBE ASSEMBLY |
| 1 | D3391-021 | FWD TUBE ASSEMBLY |
| 1 | D3391-023 | MID TUBE ASSEMBLY |
| 1 | D3391-025 | AFT TUBE ASSEMBLY |
| 2 | D3591-1 | BUSHING |
| 1 | D4095-041 | WEARSHOE |
| 1 | D4095-043 | WEARSHOE |
| 1 | D4095-045 | WEARSHOE |
| 1 | D4095-047 | WEARPAD |
| 1 | D4095-049 | WEARPAD |
| 1 | D4095-051 | WEARSHOE |
| 24 | AN3C4A | BOLT |
| 10 | AN3C6A | BOLT |
| 4 | AN3C7A | BOLT |
| 38 | AN960C10L | WASHER |

GENERAL NOTES

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.
- 6) FIT D4095-041 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-041
- 7) FIT D4095-043 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH THE APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-043

RELEASED
2011-11-04

| | | | |
|------------|----------|--|--------|
| DESIGN | PH | DART AEROSPACE USA, INC | |
| DRAWN | XDF | KENT, WA | |
| CHECKED | | DRAWING NO. D3391 | REV. 1 |
| MFG. APPR. | | SHEET 2 OF 8 | |
| APPROVED | | TITLE | SCALE |
| DE APPR. | | 412 FLOAT SKIDTUBE | NTS |
| DATE | 11.10.13 | <small>COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small> | |

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

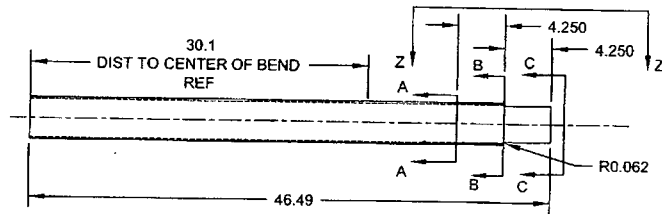
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

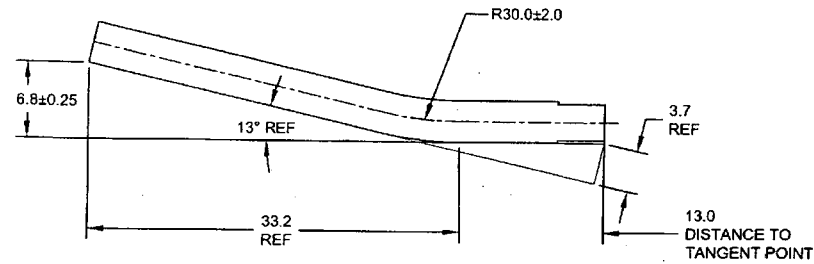
| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

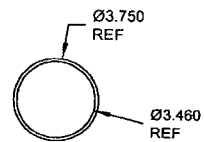
85162



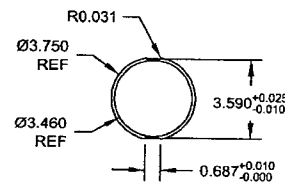
D3391-1 CUTTING DETAIL
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



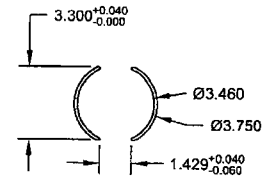
D3391-011/-021 BENDING DETAIL
(MAKE FROM D3391-1)



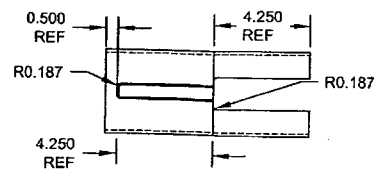
SECTION A-A
SCALE 2X



SECTION B-B
SCALE 2X



SECTION C-C
SCALE 2X



VIEW Z-Z
SCALE 2X

RELEASED
2011-11-04

| | | | |
|------------|----------|--|--------------|
| DESIGN | PH | DART AEROSPACE USA, INC | |
| DRAWN | XDF | KENT, WA | |
| CHECKED | | DRAWING NO. D3391 | REV. 1 |
| MFG. APPR. | | | SHEET 3 OF 8 |
| APPROVED | | TITLE | SCALE |
| DE APPR. | | 412 FLOAT SKIDTUBE | NTS |
| DATE | 11.10.13 | <small>COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small> | |

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

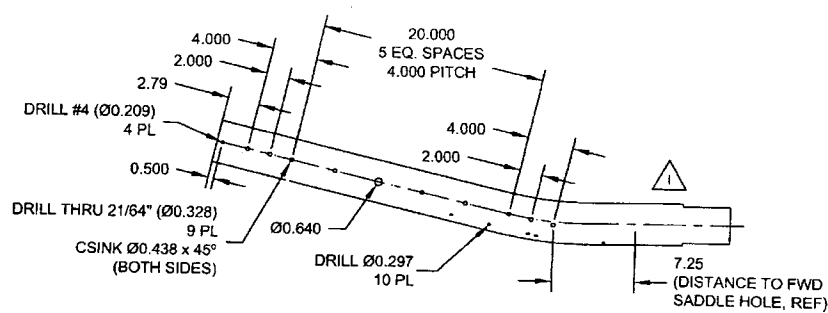
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

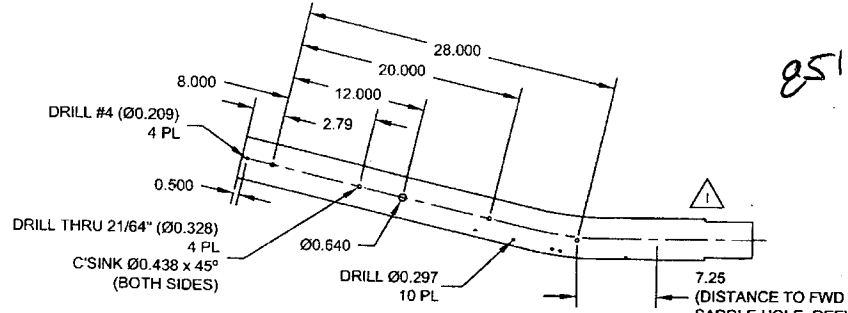
| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

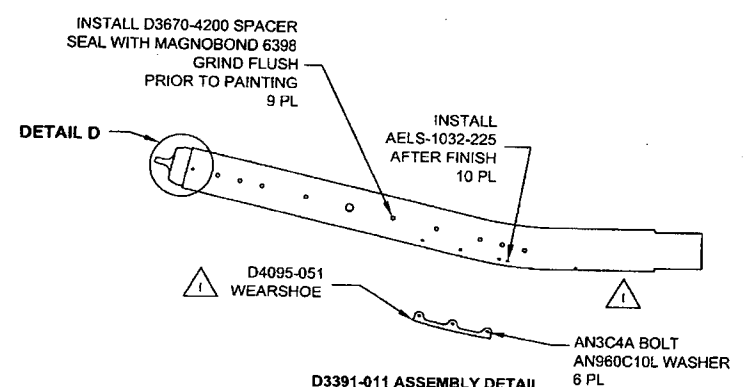
85162



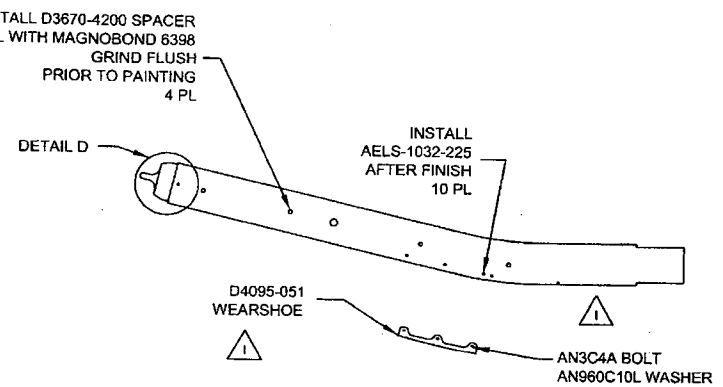
D3391-011 DRILLING DETAIL



D3391-021 DRILLING DETAIL



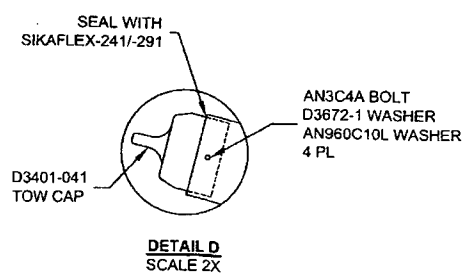
D3391-011 ASSEMBLY DETAIL



D3391-021 ASSEMBLY DETAIL

D3391-011/-021 FWD TUBE ASSEMBLY PARTS LIST

| QTY - 011 | QTY - 021 | PART NUMBER | DESCRIPTION |
|-----------|-----------|---------------|-------------------|
| X | | D3391-011 | FWD TUBE ASSEMBLY |
| | X | D3391-021 | FWD TUBE ASSEMBLY |
| 1 | 1 | D3401-041 | TOW CAP |
| 9 | 4 | D3670-4200 | SPACER |
| 4 | 4 | D3672-1 | WASHER |
| 1 | 1 | D4095-051 | WEARSHOE |
| 1 | 1 | D6013-047 | FWD TUBE |
| 10 | 10 | AN3C4A | BOLT |
| 10 | 10 | AN960C10L | WASHER |
| 10 | 10 | AELS-1032-225 | INSERT |



**DETAIL D
SCALE 2X**

RELEASED
2011-11-04

| | | | | |
|------------|--|----------|--|--------------|
| DESIGN | | PH | DART AEROSPACE USA, INC | |
| DRAWN | | XDF | KENT, WA | |
| CHECKED | | | DRAWING NO. | REV. 1 |
| MFG. APPR. | | | D3391 | SHEET 4 OF 8 |
| APPROVED | | | TITLE | SCALE |
| DE APPR. | | | 412 FLOAT SKIDTUBE | NTS |
| DATE | | 11.10.13 | <small>COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY MANNER WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small> | |

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

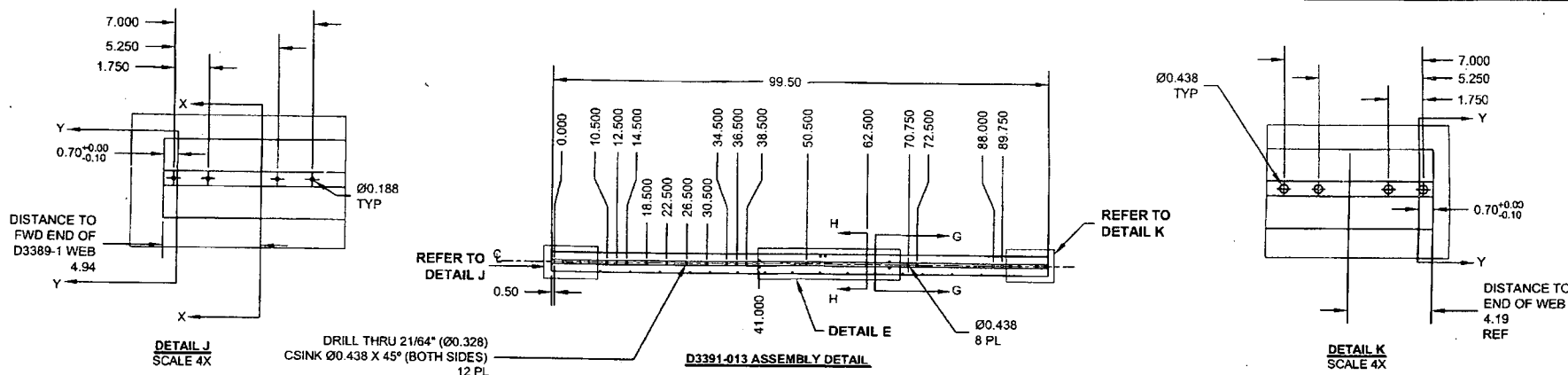
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

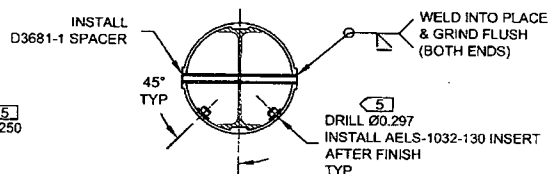
| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

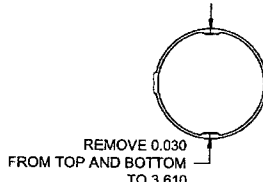
85162



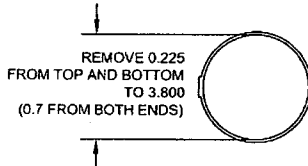
SECTION G-G
SCALE 5X



SECTION H-H
SCALE 5X



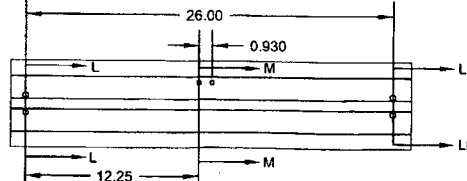
SECTION X-X
SCALE 5X



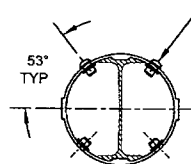
SECTION Y-Y
SCALE 5X

D3391-013 MID TUBE ASSEMBLY PARTS LIST

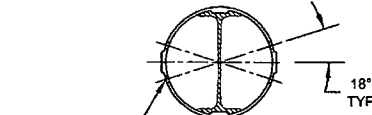
| QTY | PART NUMBER | DESCRIPTION |
|------|---------------|-------------------|
| -013 | D3391-013 | MID TUBE ASSEMBLY |
| 1 | D2500-1-100 | EXTRUSION |
| 1 | D3389-1 | WEB |
| 4 | D3672-1 | WASHER |
| 4 | D3672-3 | WASHER |
| 12 | D3681-1 | SPACER |
| 24 | AELS-1032-130 | INSERT |
| 4 | ALS4-428-165 | INSERT |
| 4 | AN960C10L | WASHER |
| 4 | AN960C416L | WASHER |
| 4 | MS27039C1-09 | SCREW |
| 4 | MS27039C4-08 | SCREW |



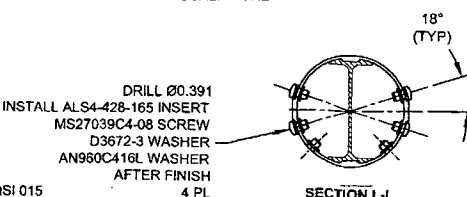
DETAIL E
SCALE NONE



SECTION M-M
SCALE 5X



SECTION LL-LL
SCALE 5X



SECTION L-L
SCALE 5X

D3391-013 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015
- 3) WELDING: PER DART QSI 004

RELEASED
2011-11-04

| | | | | | |
|---|--|----------|--|---|--|
| DESIGN | | PH | | DART AEROSPACE USA, INC | |
| DRAWN | | XDF | | KENT, WA | |
| CHECKED | | | | DRAWING NO. REV. I | |
| MFG. APPR. | | | | D3391 SHEETS 5 OF 8 | |
| APPROVED | | | | TITLE SCALE | |
| DE APPR. | | | | 412 FLOAT SKIDTUBE NTS | |
| DATE | | 11.10.13 | | COPYRIGHT © 2005 BY DART AEROSPACE USA, INC | |
| THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL. IT IS SUPPLIED ON THE EXPRESS UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC. | | | | | |

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

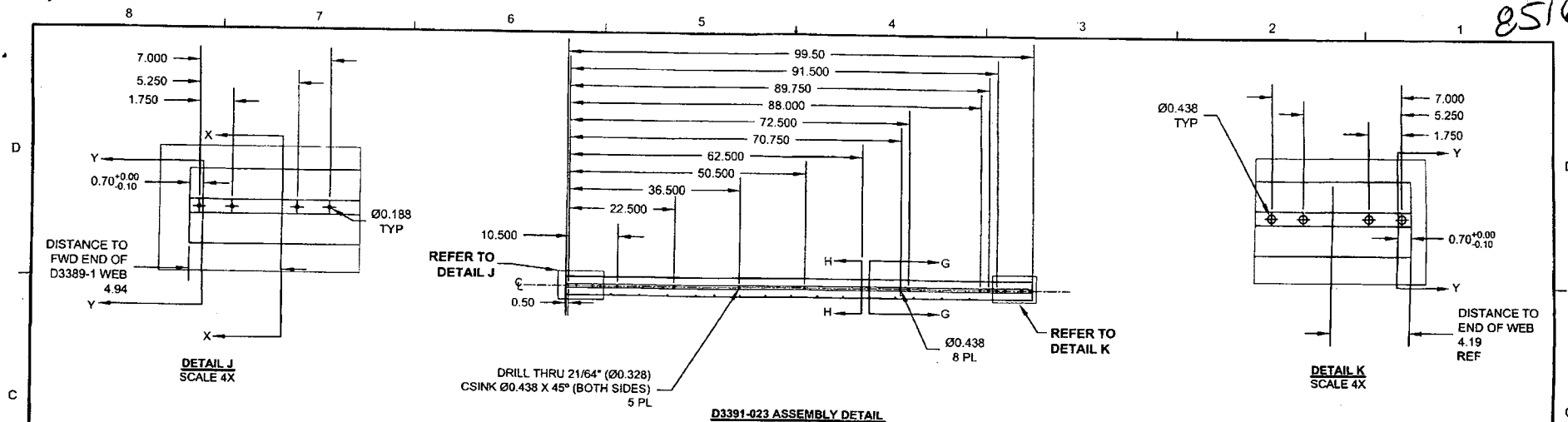
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

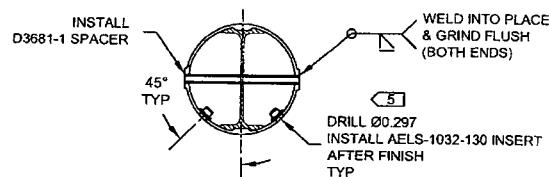
| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

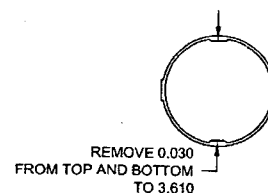
85162



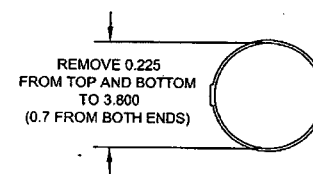
SECTION G-G
SCALE 5X



SECTION H-H 5 PL
SCALE 5X



SECTION X-X
SCALE 5X



SECTION Y-Y
SCALE 5X

D3391-023 MID TUBE ASSEMBLY PARTS LIST

| QTY - | PART NUMBER | DESCRIPTION |
|-------|---------------|-------------------|
| 023 | D3391-023 | MID TUBE ASSEMBLY |
| 1 | D2500-1-100 | EXTRUSION |
| 1 | D3389-1 | WEB |
| 5 | D3681-1 | SPACER |
| 20 | AELS-1032-130 | INSERT |

D3391-023 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
- 3) WELDING: PER DART QSI 004

RELEASE
2011-11-04

| | | | |
|-----------|----------|---|--------------|
| DESIGN | PH | DART AEROSPACE USA, INC | |
| DRAWN | XDF | KENT, WA | |
| CHECKED | | DRAWING NO. | REV. |
| MFG APPR. | | D3391 | SHEET 6 OF 6 |
| APPROVED | | TITLE | SCALE |
| DE APPR. | | 412 FLOAT SKIDTUBE | NTS |
| DATE | 11.10.13 | COPYRIGHT © 2013 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL. IT IS LOANED TO YOU BY THE EXPRESS OR IMPLIED UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION FROM DART AEROSPACE USA, INC. | |

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

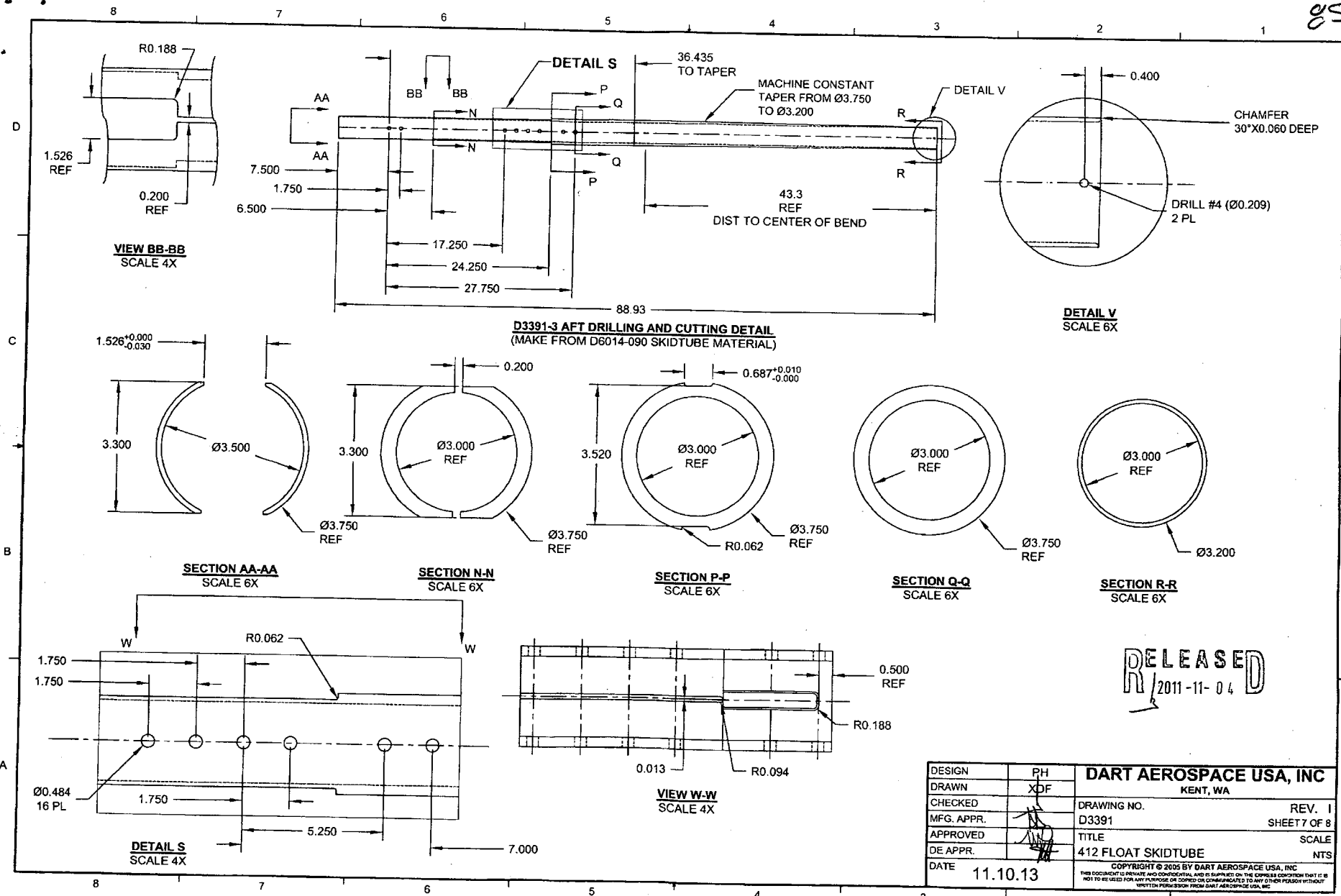
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

85162



RELEASED
2011-11-04

| | | | |
|------------|----------|---|--------------|
| DESIGN | PH | DART AEROSPACE USA, INC | |
| DRAWN | XDF | KENT, WA | |
| CHECKED | | DRAWING NO. | REV. 1 |
| MFG. APPR. | | D3391 | SHEET 7 OF 8 |
| APPROVED | | TITLE | SCALE |
| DE APPR. | | 412 FLOAT SKIDTUBE | NTS |
| DATE | 11.10.13 | <small>COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR CONVEYED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC</small> | |

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

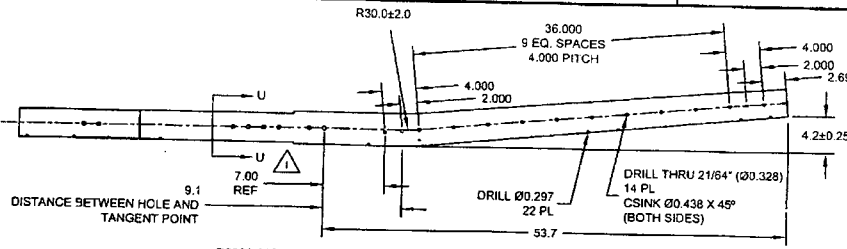
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

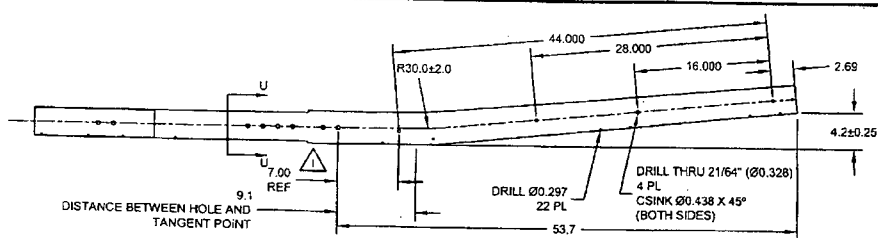
| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

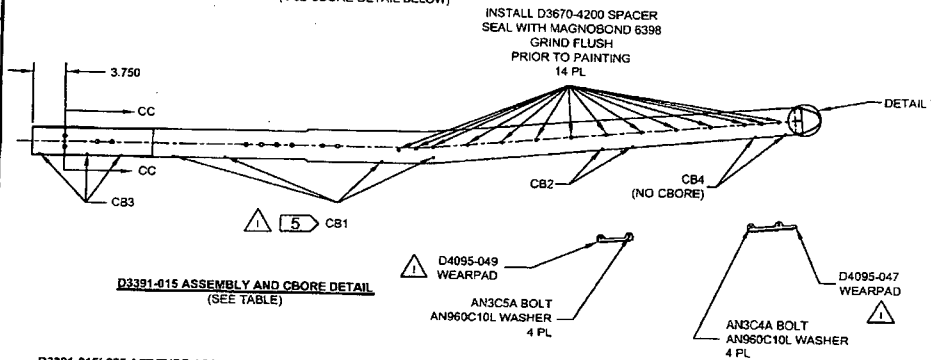
85102



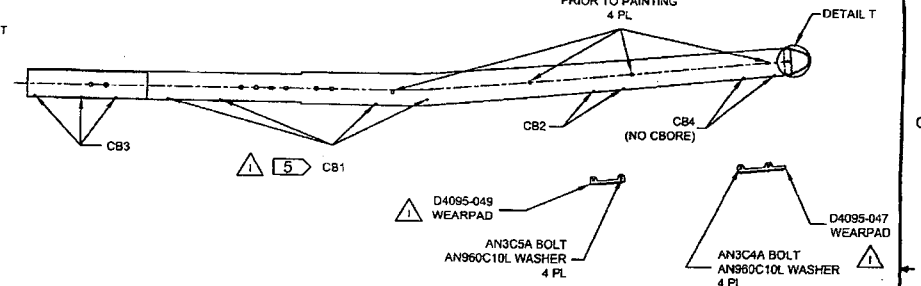
D3391-015 BENDING AND DRILLING DETAIL
(SEE CBORE DETAIL BELOW)



D3391-025 BENDING AND DRILLING DETAIL
(SEE CBORE DETAIL BELOW)



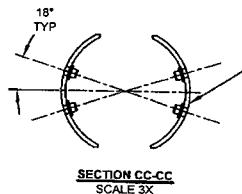
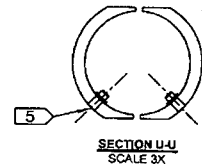
D3391-015 ASSEMBLY AND CBORE DETAIL
(SEE TABLE)



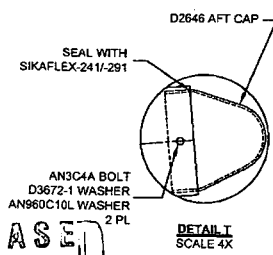
D3391-025 ASSEMBLY AND CBORE DETAIL
(SEE TABLE)

D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST

| QTY - 015 | QTY - 025 | PART NUMBER | DESCRIPTION |
|-----------|-----------|---------------|-------------------|
| X | X | D3391-015 | AFT TUBE ASSEMBLY |
| | | D3391-025 | AFT TUBE ASSEMBLY |
| 1 | 1 | D2646 | AFT CAP |
| 14 | 4 | D3670-4200 | SPACER |
| 2 | 2 | D3672-1 | WASHER |
| 1 | 1 | D4095-049 | WEARPAD |
| 1 | 1 | D4095-047 | WEARPAD |
| 1 | 1 | D6014-090 | AFT TUBE |
| 14 | 14 | AELS-1032-130 | INSERT |
| 8 | 8 | AELS-1032-225 | INSERT |
| 4 | 4 | ALS4-428-165 | INSERT |
| 6 | 6 | AN3C4A | BOLT |
| 4 | 4 | AN3C5A | BOLT |
| 10 | 10 | AN960C10L | WASHER |



DRILL 0.391
CBORE 0.516 X 0.040 DEEP
INSTALL ALS4-428-165 INSERT
4 PL



CBORE HOLES MARKED CB1-CB4 AS FOLLOWS AND
INSTALL AELS-1032-XXX AFTER FINISH AS NOTED

| HOLES MARKED | QTY D3391-015 | QTY D3391-025 | CBORE | P/N |
|--------------|---------------|---------------|---------------|---------------|
| CB1 | 8 | 8 | 0.430 X 0.170 | AELS-1032-225 |
| CB2 | 4 | 4 | 0.430 X 0.170 | AELS-1032-130 |
| CB3 | 6 | 6 | 0.430 X 0.040 | AELS-1032-130 |
| CB4 | 4 | 4 | NONE | AELS-1032-130 |

RELEASED
2011-11-04

| | | | |
|------------|----------|--|--------------|
| DESIGN | PH | DART AEROSPACE USA, INC | |
| DRAWN | XDF | KENT, WA | |
| CHECKED | | DRAWING NO. | REV. 1 |
| MFG. APPR. | | D3391 | SHEET 8 OF 8 |
| APPROVED | | TITLE | SCALE |
| DE APPR. | | 412 FLOAT SKIDTUBE | NTS |
| DATE | 11.10.13 | COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL. NO REPRODUCTION OR DISSEMINATION OF ANY PART IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSON FROM DART AEROSPACE USA, INC. | |

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

NO. 296

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Berclay Elliott
Job number: 85161
Part number: A3391-023
Description: Skid
Welding Process: Tig[☒] Mig[]
Base material: Alum
Current: AC[☒] DC[]

TEST REQUIREMENTS AND RESULTS

Visual: pass[☒] fail[]
Penetration: pass[☒] fail[]

UNACCEPTABLE

Cracks: pass[☒] fail[]
Undercut: pass[☒] fail[]
Pin holes: pass[☒] fail[]
Overlap (cold lap): pass[☒] fail[]
Porosity (surface): pass[☒] fail[]
Coloration: pass[☒] fail[]

Qualifier David David Date of Test Coupon 12-06-07
Welder Berclay Elliott Date of Test Coupon 12-06-07

The above named individual is qualified in accordance with AWS D17.1.2001 to weld